

REMARKS

Applicants amend claims 1 and 4-8 herein, and introduce new claim 19. The claims, if amended as proposed, do not present any new issues requiring further consideration or search by the examiner, and do not raise the issue of new matter under 35 USC §132(a).

The examiner has objected to claims 1, 4, and 6. Claim 1 has been amended to reintroduce the radical NR^7R^8 , thus eliminating the identified redundancy. Claim 4 contains a Markush grouping of sulfonates within a larger Markush grouping, and applicants have amended the claim to make this more clear. Claim 6 has been made independent.

The examiner rejects claims 1, 7, and 8 under 35 USC §112, ¶1 for lack of adequate enablement. Applicants respectfully direct the examiner to example 31 of the present specification, which demonstrates preparation of a triazol compound, where two CH moieties are substituted with N. It is submitted that this example sufficiently enables the present claims.

In view of the present amendments and remarks, applicants consider that the rejections of record have been obviated and respectfully solicit passage of the application to issue.

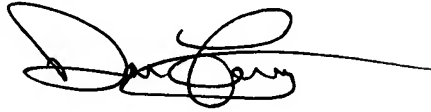
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KRISTEN et al., Serial No. 10/049,861

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Respectfully submitted,
KEIL & WEINKAUF

A handwritten signature in black ink, appearing to read 'David C. Liechty', with a long horizontal line extending to the right.

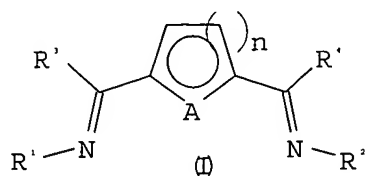
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DCL/kas

COPY OF ALL CLAIMS

1. (currently amended) A compound of the formula (I)



where the symbols have the following meanings:

A is a nonmetal selected from among N, S, O and P,

R¹ is a radical of the formula NR⁵R⁶,

R² is a radical of the formula NR⁵R⁶ or NR⁷R⁸, alkyl, aryl or cycloalkyl,

R⁵ and R⁶ together with the N atom form a pyrrole radical or a radical derived from pyrrole in which one or more -CH- groups in the pyrrole ring may be replaced by nitrogen and which is substituted in the 2 and 5 positions by C₁-C₆-alkyl groups which may be linear, branched or substituted by heteroatoms, and/or by aryl groups which may be unsubstituted or in turn substituted by heteroatoms or C₁-C₆-alkyl groups which may be heteroatom-substituted and

R⁷ and R⁸ are, independently of one another, alkyl, aryl or cycloalkyl radicals, and

R³, R⁴ are, independently of one another, H or alkyl, aryl or cycloalkyl radicals, and

n is 1 or 2.

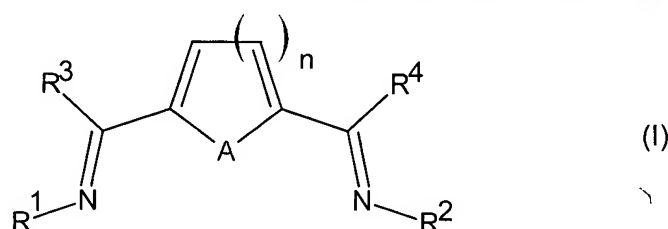
2. (canceled)
3. (canceled)

4. (currently amended) A compound as claimed in claim 1, wherein the pyrrole radicals or radicals derived from pyrrole are substituted in the 2 or 5 position by electron-withdrawing radicals selected from the group consisting of

- halogen,
- trihalomethyl,
- NO₂, and
- sulfonates selected from the group consisting of
 - SO₃R^{*},
 - SO₃SiR^{*}₃ and
 - SO₃⁻ (H-NR^{*}₃)⁺, and
- ~~trihalomethyl~~,

where R^{*} may be identical or different and are selected from the group consisting of H, C₁-C₁₀-alkyl, C₆-C₂₀-aryl and C₅-C₈-cycloalkyl.

5. (currently amended) A compound of the formula (I) ~~as claimed in claim 1,~~



wherein in the formula (I) of claim 1, A = N and n = 2

A is N,

n is 2,

R¹ is a radical of the formula NR⁵R⁶,

R² is a radical of the formula NR⁵R⁶ or NR⁷R⁸, alkyl, aryl or cycloalkyl,

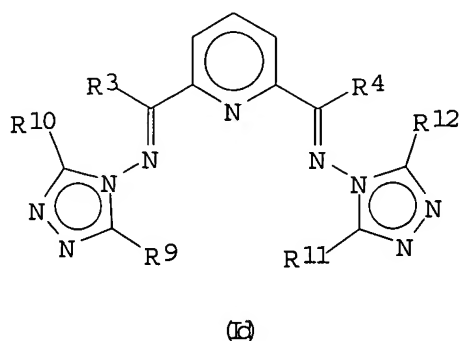
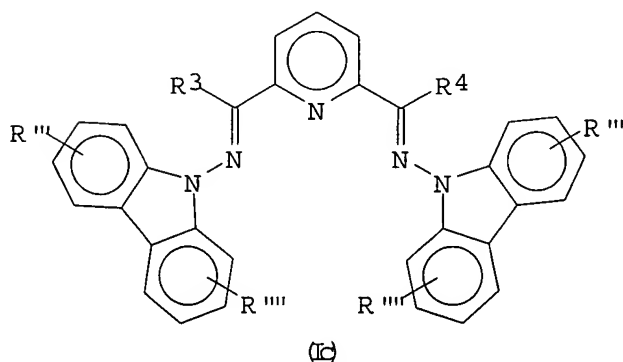
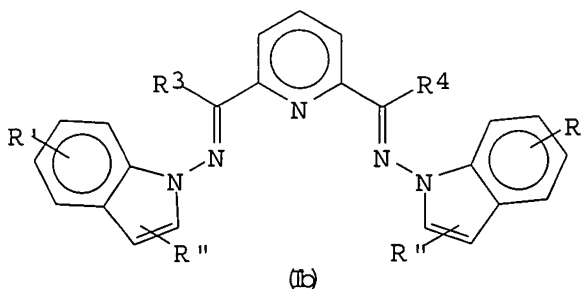
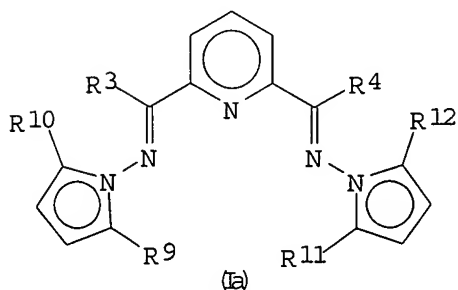
R⁵ and R⁶ together with the N atom form a 5-, 6- or 7-membered ring in

which one or more of the -CH- or -CH₂- groups may be replaced by suitable heteroatom groups and which may be saturated or unsaturated and unsubstituted or substituted or be fused with further carbacyclic or heterocarbacyclic 5- or 6-membered rings which may in turn be saturated or unsaturated and substituted or unsubstituted,

R⁷ and R⁸ are, independently of one another, alkyl, aryl or cycloalkyl radicals, and

R³, R⁴ are, independently of one another, H or alkyl, aryl or cycloalkyl radicals.

6. (currently amended) A compound ~~as claimed in claim 5~~ which corresponds to one of the formulae (Ia), (Ib), (Ic) and (Id):



where

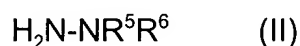
R^3 , R^4 are, independently of one another, H or alkyl or aryl radicals,

and

R^9 , R^{10} , R^{11} and R^{12} are, independently of one another, C_1 - C_6 -alkyl radicals, and

R' , R'' , R''' , R'''' are H or alkyl, aryl or cycloalkyl radicals.

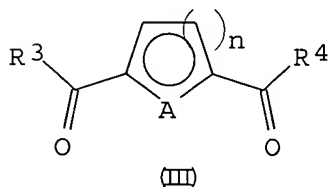
7. (currently amended) A process for preparing symmetrical compounds of the formula (I) of claim 19 ~~claim 4~~ in which $R^1 = R^2$ by reacting compounds of the formula (II)



where

R^5 and R^6 ~~are as defined in claim 19 together with the N atom form a pyrrole radical or a radical derived from pyrrole substituted in the 2 and 5 positions by C_1 - C_6 -alkyl groups which may be linear, branched or substituted by heteroatoms, and/or by aryl groups which may be unsubstituted or in turn substituted by heteroatoms or C_1 - C_6 -alkyl groups which may be heteroatom-substituted,~~

with compounds of the formula (III)



where

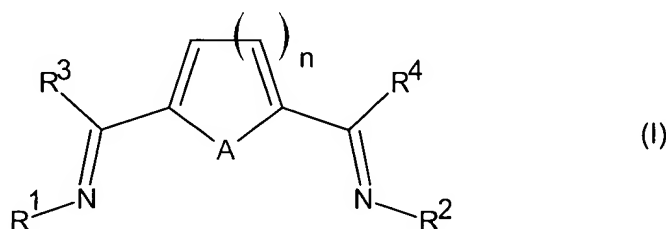
R^3 , R^4 are defined as in claim 19, independently of one another, H or alkyl, aryl or cycloalkyl radicals, and

A is N or P, and

n is 1 or 2, and

in a single-stage process under acidic reaction conditions in alcoholic solution or in the presence of a trialkylaluminum catalyst in an aprotic solvent in a ratio of the compound of the formula (II) to the compound of the formula (III) of 2:0.7-1.3.

8. (currently amended) A process for preparing unsymmetrical compounds of the formula (I)



of claim 4

wherein

A is a nonmetal selected from the group consisting of N, S, O and P.

n is 1 or 2.

R¹ is a radical of the formula NR⁵R⁶.

R² is a radical of the formula NR⁵R⁶ or NR⁷R⁸, alkyl, aryl or cycloalkyl.

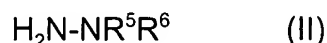
R⁵ and R⁶ together with the N atom form a 5-, 6- or 7-membered ring in which one or more of the -CH- or -CH₂- groups may be replaced by suitable heteroatom groups and which may be saturated or unsaturated and unsubstituted or substituted or be fused with further carbacyclic or heterocarbacyclic 5- or 6-membered rings which may in turn be saturated or unsaturated and substituted or unsubstituted.

R⁷ and R⁸ are, independently of one another, alkyl, aryl or cycloalkyl radicals, and

R³, R⁴ are, independently of one another, H or alkyl, aryl or cycloalkyl radicals:

in which R¹ ≠ R² in a two-stage process in which

a) in a first step, compounds of the formula (II)



where

~~R⁵ and R⁶ together with the N atom form a pyrrole radical or a radical~~

~~derived from pyrrole substituted in the 2 and 5 positions by~~

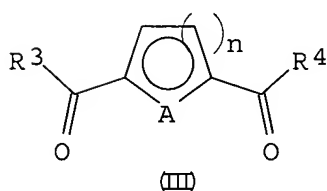
~~G₁-G₆-alkyl groups which may be linear, branched or substituted by~~

~~heteroatoms, and/or by aryl groups which may be unsubstituted or~~

~~in turn substituted by heteroatoms or G₁-G₆-alkyl groups which may~~

~~be heteroatom-substituted;~~

are reacted with compounds of the formula (III)



where

~~R³, R⁴ are, independently of one another, H or alkyl, aryl or cycloalkyl radicals, and~~

~~A is N or P, and~~

~~n is 1 or 2;~~

in a mole ratio of the compounds of the formula (II) to the compounds of the formula (III) of 1:0.8-1.2 under acidic conditions in alcoholic solution to form the corresponding monoimine and the solvent is subsequently

removed under reduced pressure,

and

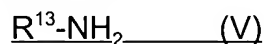
- b) the resulting monoimine is, in a second step, reacted with compounds of the formula (II) which differ from the compounds of the formula (II) used in step a); or with compounds of the formula (IV)



where

R⁷ and R⁸ are, independently of one another, alkyl, aryl or cycloalkyl radicals,

or with amines of the formula (V)



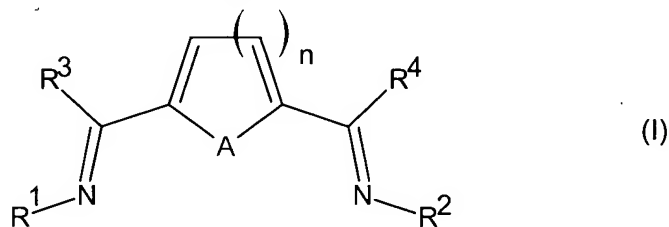
where

R¹³ is an alkyl, aryl or cycloalkyl radical,

in aprotic solution in the presence of a trialkylaluminum catalyst in a mole ratio of the monoimine to the compound of the formula (II) which differs from the compound of formula (II) used in step a), (IV) or (V) of 1:0.8-1.2.

9.-18. (canceled)

19. (new) A compound of the formula (I)



wherein

A is a nonmetal selected from the group consisting of N and P,
n is 1,
R¹ is a radical of the formula NR⁵R⁶,
R² is a radical of the formula NR⁵R⁶ or NR⁷R⁸, alkyl, aryl or cycloalkyl,
R⁵ and R⁶ together with the N atom form a 5-, 6- or 7-membered ring in
which one or more of the -CH- or -CH₂- groups may be replaced by
suitable heteroatom groups and which may be saturated or
unsaturated and unsubstituted or substituted or be fused with
further carbacyclic or heterocarbacyclic 5- or 6-membered rings
which may in turn be saturated or unsaturated and substituted or
unsubstituted,
R⁷ and R⁸ are, independently of one another, alkyl, aryl or cycloalkyl
radicals, and
R³, R⁴ are, independently of one another, H or alkyl, aryl or cycloalkyl
radicals;

or wherein

A is a nonmetal selected from the group consisting of S, O and P,
n is 1 or 2,
R¹ to R⁸ are as defined above;

or wherein

A is N,
n is 2,
R¹ is as defined above,
R² is a radical of the formula NR⁷R⁸, alkyl, aryl or cycloalkyl,
R³ to R⁸ are as defined above;

or wherein

A is N,
n is 2,

R^1 is as defined above,

R^2 is a radical of the formula NR^5R^6 or NR^7R^8 , alkyl, aryl or cycloalkyl,

R^5 and R^6 together with the N atom form a 6- or 7-membered ring in which one or more of the -CH- or -CH₂- groups may be replaced by suitable heteroatom groups and which may be saturated or unsaturated and unsubstituted or substituted or be fused with further carbacyclic or heterocarbacyclic 5- or 6-membered rings which may in turn be saturated or unsaturated and substituted or unsubstituted,

R^7 and R^8 are as defined above, and

R^3 , R^4 are as defined above;

or wherein

A is N,

n is 1,

R^1 is as defined above,

R^2 is a radical of the formula NR^5R^6 or NR^7R^8 , alkyl, aryl or cycloalkyl,

R^5 and R^6 together with the N atom form a 5-membered ring in which none of the other -CH- or -CH₂- groups is replaced by a heteroatom group, and which may be saturated or unsaturated and unsubstituted or substituted or be fused with further carbacyclic or heterocarbacyclic 5- or 6-membered rings which may in turn be saturated or unsaturated and substituted or unsubstituted,

R^7 and R^8 are as defined above, and

R^3 , R^4 are as defined above;

or wherein

A is N,

n is 2,

R^1 is as defined above,

R^2 is a radical of the formula NR^5R^6 or NR^7R^8 , alkyl, aryl or cycloalkyl, R^5 and R^6 together with the N atom form a 5-membered ring in which one or more of the -CH- or -CH₂- groups may be replaced by suitable heteroatom groups and which may be saturated or unsaturated and unsubstituted or substituted and is fused with one or more further carbacyclic or heterocarbacyclic 5- or 6-membered rings which may in turn be saturated or unsaturated and substituted or unsubstituted,

R^7 and R^8 are as defined above, and

R^3 , R^4 are as defined above;

or wherein

A is N,

n is 2,

R^1 - R^4 , R^7 , and R^8 are as defined above, and

R^5 and R^6 , together with the N atom form a pyrrol radical which may be substituted or unsubstituted or fused with further carbacyclic 5- or 6-membered rings which may in turn be saturated or unsaturated and substituted or unsubstituted.